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21171 7590 08/14/2008 STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER CROW, ROBERT THOMAS	
			ART UNIT 1634	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/624,567

**Applicant(s)**

MIYAHARA ET AL.

**Examiner**

Robert T. Crow

**Art Unit**

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 11 and 12 is/are pending in the application.  
4a) Of the above claim(s) 12 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-9 and 11 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**FINAL ACTION**

***Status of the Claims***

1. This action is in response to papers filed 30 April 2008 in which claims 1-3 were amended, no claims were canceled, and no new claims were added. All of the amendments have been thoroughly reviewed and entered.

The previous rejections under 35 U.S.C. 112, second paragraph, are withdrawn in view of the amendments.

The previous rejections under 35 U.S.C. 103(a) not reiterated below are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are addressed following the rejections necessitated by the amendments.

The previous rejections under the judicially created doctrine of obviousness-type double patenting are withdrawn in view of Applicant's filing of a Terminal Disclaimer, which was approved on 28 February 2008.

Claims 1-9 and 11 are under prosecution.

***Terminal Disclaimer***

2. The terminal disclaimer filed on 24 January 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,916,614 has been reviewed and was accepted on 28 February 2008. The terminal disclaimer has been recorded.

***Election/Restrictions***

3. This application contains claim 12, which is drawn to an invention nonelected with traverse in the reply filed on 21 April 2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

4. The following are new rejections necessitated by the amendments.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 1, 3-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Caillat et al (European Patent Application Publication No. EP 0 882 981 A1, published 12 September 1998) in view of Hashimoto et al (U.S. Patent No 5,776,672, issued 7 July 1997), and, as applied to claim 5, as evidenced by the online dictionary at [dictionary.cambridge.org](http://dictionary.cambridge.org), and, as applied to claim 9, as evidenced by the online dictionary at Merriam-Webster.com. Citations of Caillat et al are from U.S. Patent 6,126,800, which is an English language equivalent of the European Patent Application.

Regarding claim 1, Caillat et al teach a detection chip. In a single exemplary embodiment, Caillat et al teach Figure 5, which shows a body having a depression; namely, a cuvette 252, which is a depression, formed as a depression within the body comprised of first and second substrates 254 and 256, which are attached together to form a single body (column 5). Cover 268 rests above the body (Figure 5) to form the cuvette, which is the instantly claimed internal enclosed space. The cuvette encloses a biological sensor having DNA probes for binding to DNA (column 1, lines 17-20). The teaching of DNA encompasses gene samples.

The internal space further comprises a plurality of measuring electrodes in the form of analysis electrodes 212 fixed within the cuvette (column 6, lines 1-10), as well as common electrode in the form of counter electrode 215 (Figure 6 and column 5, line 63-column 6, line 25). The electrodes are formed at the bottom of the space, and are thus operatively connected at the bottom of the space. Caillat et al also teach measurement current is selectively measured between a given analysis electrode and the counter electrode (column 6, lines 15-21), which is interpreted as measuring an

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electric current variation. Caillat et al further teach the measuring electrodes 212 are lined with probes (column 5, lines 40-45) so that the probes are immobilized (i.e., grafted) onto the measuring electrodes (column 1, lines 50-64). The probes are DNA probes, which are oligonucleotides (column 1, lines 20-25); thus, hybridization assays measured by the device, and at least one of a plurality of oligonucleotides are immobilized on at least one of the plurality of measuring electrodes. Common electrode 215 is part of the chip (Figure 6), which is in the enclosed space (Figure 5). Caillat et al teach also teach application of a voltage between the common electrode and the measuring electrodes to detect current variations (column 3, line 65-column 4, line 5 and column 6, lines 18-20).

It is noted that the courts have held that "while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). In addition, "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). Therefore, the various uses recited in claim 1 (e.g., receiving gene samples) fail to define additional structural elements to the device of claim 1. Because the prior art teaches the structural elements of claim 1, the claim is obvious over the prior art.

Caillat et al teach the space is sufficient for hybridization to occur because the space is sufficed to measure analyte binding (column 3, lines 53-65). Caillat et al also

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teach the chip detects a current between a given analysis electrode and the counter electrode during an analysis stage (column 6, lines 15-21).

However, Caillat et al do not teach the immobilized oligonucleotides and electrodes are for detecting point mutations.

However, Hashimoto et al teach electrodes having single stranded nucleic acid probes (i.e., oligonucleotides) attached immobilized thereon (Abstract). The probes and electrodes detect point mutations electrochemically (Example 30). Hashimoto et al also teach the electrodes and probes have the added advantage of allowing detection of an extremely small amount of analyte in a test sample (column 53, lines 55-60). Thus, Hashimoto et al teach the known technique of having immobilized oligonucleotides and electrodes for detecting point mutations.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the chip of Caillat et al, which detects a current between a given analysis electrode and the counter electrode during an analysis stage, so that the immobilized oligonucleotides and electrodes detect point mutations as taught by Hashimoto et al to arrive at the instantly claimed chip with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in a chip having the added advantage of allowing detection of an extremely small amount of analyte in a test sample as explicitly taught by Hashimoto et al (column 53, lines 55-60). In addition, it would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made that the known technique of having immobilized

oligonucleotides and electrodes for detecting point mutations as taught by Hashimoto et al could have been applied as the probes and electrodes in the chip of Caillat et al with predictable results because the known technique of having immobilized oligonucleotides and electrodes for detecting point mutations as taught by Hashimoto et al predictably results in electrodes and probes useful in the detection of genetic samples.

Regarding claim 3, the chip of claim 1 is discussed above. Caillat et al further teach the cover is transparent; namely, the cover is glass and allows light to pass through (column 5, lines 50-60).

Regarding claim 4, the chip of claim 1 is discussed above. Caillat et al further teach the measuring electrodes form an array; namely, Figure 6 shows measuring electrodes 212 in an array.

Regarding claim 5, the chip of claim 1 is discussed above. Caillat et al further teach the common electrode is arranged so as not to contact the measuring electrodes because Figure 6 shows counter electrode 215, which is the common electrode, does not contact measuring electrodes 212, as evidenced by the online dictionary at [dictionary.cambridge.org](http://dictionary.cambridge.org), which defines "contact" as "when two things touch each other." Figure 6 clearly shows that while common electrode 212 does not touch measuring electrodes 215. In addition, a review of the specification yields no limiting definition of "contact." Thus, the claim has been given the broadest reasonable interpretation consistent with the teachings of the specification regarding "contact" (*In re Hyatt*, 211 F.3d1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000) (see MPEP 2111 [R-1])).

Regarding claim 6 the chip of claim 1 is discussed above. Caillat et al further teach different electrodes of the chip are covered with different reactants (column 2, lines 3-20), wherein the reactants are probe molecules that are DNA probes (column 1, lines 20-25), which are oligonucleotides.

Regarding claim 9, the chip of claim 1 is discussed above. A review of the specification yields no limiting definition of a "card." The online dictionary of Merriam-Webster at m-w.com defines a card as "a flat stiff usually small and rectangular piece of material (as paper, cardboard, or plastic) usually bearing information. Caillat et al teach the chip is flat (Figure 5) and is made of a glass fiber/epoxy resin composite material (column 5, lines 10-15), which is interpreted as 'stiff.'" Thus, Caillat et al teach the chip is a "card," and the claim has been given the broadest reasonable interpretation consistent with the teachings of the specification regarding a "card."

8. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Caillat et al (European Patent Application Publication No. EP 0 882 981 A1, published 12 September 1998 wherein the citations of Caillat et al are from U.S. Patent 6,126,800, which is an English language equivalent of the European Patent Application) in view of Hashimoto et al (U.S. Patent No 5,776,672, issued 7 July 1997) as applied to claim 1 above, and further in view of Wilding et al (U.S. Patent No. 5,587,128, issued 24 December 1996).

Regarding claim 2, the chip of claim 1 is discussed above in Section 7.

Neither Caillat et al nor Hashimoto et al teach injection holes extending through the body and the cover into said depression.

However, Wilding et al teach a device for detecting polynucleotides by measuring conductivity (column 21, lines 15-20). The device of Wilding et al comprises a body having a depression (Figure 2B), an cover to be fixed to said body from above said depression (Figure 2B), an enclosed internal space part, formed by said depression in said body as a result of said cover being fixed to said body (e.g., the device is sealed by the cover; column 4, lines 15-20 and Figure 2B). Wilding et al also teach Figure 1C, which shows injection holes 16 extending through cover 12 and into the channel 22, which is a depression in the body of the device (column 16, lines 25-46). Wilding et al also teach the added advantage that the ports allow addition of the sample and reagents and the withdrawal of products (column 16, lines 25-46) while maintaining a seal over the device (column 4, lines 16-24). Thus, Wilding et al teach the known technique of providing injection holes extending through the cover into the depression of the device.

While Wilding et al do not specifically teach the injection holes on two opposing surfaces of each of said body and said cover, the courts have held that the rearrangement of parts within a device is obvious when the arrangement does not specifically modify the operation of the device (*In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950)). See MPEP §2144.04.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the chip of Caillat et al in view of

Hashimoto et al to further comprise the injection holes extending through the body and the cover as taught by Wilding et al, and rearranged in the obvious variant so as to be on two opposing surfaces of each of said body and said cover, to arrive at the instantly claimed chip with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in a chip having the added advantage of allowing addition of the sample and reagents and the withdrawal of products while maintaining a seal over the device as explicitly taught by Wilding et al (column 16, lines 25-46 and column 4, lines 16-24). In addition, it would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made that the known technique of having the obvious rearrangement of the injection holes extending through the body and the cover as taught by Wilding et al could have been applied to the chip of Caillat et al in view of Hashimoto et al with predictable results because the known technique of having the obvious rearrangement of the injection holes extending through the body and the cover as taught by Wilding et al predictably results in a chip that easily allows addition and removal of materials from the chip.

Regarding claim 11, the chip of claim 1 is discussed above. While Caillat et al teach heating elements in the form of resistance heater 265 (Figure 5 and column 6, lines 40-50), neither Caillat et al nor Hashimoto et al teach Peltier elements.

However, Wilding et al teach a device for detecting polynucleotides by measuring conductivity (column 21, lines 15-20). The device of Wilding et al comprises a body having a depression (Figure 2B), a cover to be fixed to said body from above said

depression (Figure 2B), an enclosed internal space part, formed by said depression in said body as a result of said cover being fixed to said body (e.g., the device is sealed by the cover; column 4, lines 15-20 and Figure 2B). Wilding et al also teach the device has Peltier heating elements which provide the added advantage of providing both heating and cooling functions (column 17, lines 15-17). Thus, Wilding et al teach the known technique of using Peltier heating elements as heating elements.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the chip comprising heating elements as taught by Caillat et al in view of Hashimoto et al so that the heating elements are the Peltier devices as taught by Wilding et al to arrive at the instantly claimed chip with a reasonable expectation of success.. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in a chip having the added advantage of providing both heating and cooling functions as explicitly taught by Wilding et al (column 17, lines 15-17). In addition, it would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made that the known technique of using Peltier heating devices as taught by Wilding et al could have been used as the heating devices on the chip of Caillat et al in view of Hashimoto et al with predictable results because the known technique of using Peltier heating devices as taught by Wilding et al predictably results in a heating elements know to be reliable on genetic assay chips.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Caillat et al (European Patent Application Publication No. EP 0 882 981 A1, published 12 September 1998 wherein the citations of Caillat et al are from U.S. Patent 6,126,800, which is an English language equivalent of the European Patent Application) in view of Hashimoto et al (U.S. Patent No 5,776,672, issued 7 July 1997) as applied to claim 1 above, and further in view of Heller et al (U.S. Patent No. 5,632,957, issued 27 May 1997).

Regarding claim 7, the chip of claim 1 is discussed above in Section 7.

Neither Caillat et al nor Hashimoto et al teach one to one wiring.

However, Heller et al teach a the chip comprising different nucleic acids attached at each of a plurality of microlocations (column 4, lines 55-60), wherein each of the plurality of microlocations has an electrode (column 8, lines 1-17), which are measuring electrodes. Heller et al further teach each of the measuring electrodes is connected with each of a plurality of wirings on a one to one basis (Figure 3 and column 9, lines 52-64). The wiring arrangement creates an active programmable electronic matrix (column 9, lines 52-64), which has the added advantage of allowing multiplexed multistep combinatorial synthesis of nucleic acid biopolymers at each measuring electrode independently and simultaneously (Abstract). Independent simultaneous multiplexed multistep combinatorial synthesis of nucleic acid biopolymers results in rapid parallel synthesis of the immobilized oligonucleotides at the electrodes. Thus, Heller et al teach the known technique of using one to one wiring.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the chip of Caillat et al in view of Hashimoto et al so that the chip comprises the one to one wiring as taught by Heller et al to arrive at the instantly claimed chip with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in a chip having the added advantage of allowing rapid parallel synthesis of the immobilized oligonucleotides at the electrodes as a result of allowing multiplexed multistep combinatorial synthesis of nucleic acid biopolymers at each measuring electrode independently and simultaneously as explicitly taught by Heller et al (Abstract). In addition, it would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made that the known technique of using one to one wiring as taught by Heller et al could have been used on the chip of Caillat et al in view of Hashimoto et al with predictable results because the known technique of using one to one wiring as taught by Heller et al predictably results in a reliable structure for networking electrodes.

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10. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Caillat et al (European Patent Application Publication No. EP 0 882 981 A1, published 12 September 1998 wherein the citations of Caillat et al are from U.S. Patent 6,126,800, which is an English language equivalent of the European Patent Application) in view of Hashimoto et al (U.S. Patent No 5,776,672, issued 7 July 1997) as applied to claim 1 above, and further in view of Wohlstadter et al (PCT International Application Publication No. WO 98/12539, published 26 March 1998).

It is noted that while claim 9 has been rejected under 35 USC 103(a) as described above in Section 7, the claim is also obvious using the alternate interpretation outlined below.

Regarding claims 8-9, the chip of claim 1 is discussed above in Section 7.

Neither Caillat et al nor Hashimoto et al teach a measuring apparatus to which the chip becomes electrically connected and which measures current (i.e., claim 8), or that the chip is configured to be inserted into and removed from said apparatus; i.e., an insertable cassette (i.e., claims 8 and 9).

However, Wohlstadter et al teach a chip comprising measuring electrodes and counter electrodes in the form of a cassette (page 7, lines 8-24), wherein the cassette is configured to be inserted into and removed from an apparatus comprising means for conducting electrochemiluminescence (i.e., ECL) reactions (page 84, lines 20-35). The apparatus controls electrode addressing and signal acquisition and processing (page 84, line 8-page 85, line 3), and is thus electrically connected and detects electric current (page 86, lines 8-15). Wohlstadter et al further teach the insertable cassette and

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apparatus have the added advantage of allowing execution of assays in a disposable format, thereby allowing disposable assays to be produced at a lower cost (page 113, lines 25-30). Thus, Wohlstadter et al teach the known technique of configuring a chip to be insertable cassette (i.e., claim 9) that is electrically connected to a measuring apparatus which measures current (i.e., claim 8).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the chip of Caillat et al in view of Hashimoto et al with the teachings of Wohlstadter et al. The modification would result in a chip which becomes electrically connected and which measures current that is configured to be inserted into and removed from an apparatus (i.e., claim 8) by modifying the chip into an insertable cassette (i.e., claim 9), thus arriving at the instantly claimed chip with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in a chip having the added advantage allowing disposable assays to be produced at a lower cost as a result of allowing as explicitly taught by Wohlstadter et al (page 113, lines 25-30). In addition, it would have been obvious to a person of ordinary skill in the art at the time the claimed invention was made that the known technique of configuring a chip to be insertable cassette that is electrically connected to a measuring apparatus which measures current as taught by Wohlstadter et al could have been used on the chip of Caillat et al in view of Hashimoto et al with predictable results because the known technique of configuring a chip to be insertable cassette that is electrically

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connected to a measuring apparatus which measures current as taught by Wohlstadter et al predictably results in a chip configuration useful in molecular binding assays.

### ***Response to Arguments***

11. Applicant's arguments filed 24 January 2008 (i.e., the "Remarks") have been fully considered but they are not persuasive for the reason(s) listed below.

A. Applicant's arguments on pages 5-7 of the Remarks regarding the Examiner's citation of *In re Schreiber* have been considered but are moot in view of the new ground(s) of rejection necessitated by the amendments.

It is noted, however, that MPEP 2114 clearly states that "[w]hile features of an apparatus may be recited either structurally functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). In addition, MPEP 2114 also clearly stated that "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). Thus, while Applicant argues that the citation of *In re Schreiber* appears to solely refers to anticipation via inherency, it is the MPEP itself which clearly states that "claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function."

Further, Applicant has not addressed the further teaching of MPEP 2114 that based on *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, "[A]pparatus claims cover what a

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device *is*, not what a device *does*." Therefore, the examiner's citation of MPEP 2114 is proper.

B. Applicant also argues on pages 6-7 of the Remarks that MEPE 2173.05(g) stated that "[f]unctional language doe not, in and of itself, render a claim improper."

It is noted, however, that the previous Office Action did not state that the claims were improper; rather, the previous Office Action merely stated that apparatus claims are defined in terms of structure rather than function, and that because the various uses recited in claim 1 (e.g., receiving gene samples) fail to define additional structural elements to the device of claim 1. Because the prior art teaches the structural elements of claim 1, the claim is obvious over the prior art.

C. Applicant's arguments on page 7 regarding the alleged ignoring of the functional language requiring the electrodes to be operatively connected and sufficient to detect point mutations have been considered but are moot in view of the new rejections necessitated by the amendments.

D. Applicant also argues on page 7 of the Remarks that Caillat et al do not teach common and measuring electrodes that do not contact one another because the electrodes are connected via electrical interconnections.

However, as detailed in the rejections above, Caillat et al do teach the common electrode is arranged so as not to contact the measuring electrodes because Figure 6 shows counter electrode 215, which is the common electrode, does not contact measuring electrodes 212, as evidenced by the online dictionary at [dictionary.cambridge.org](http://dictionary.cambridge.org), which defines "contact" as "when two things touch each

other." Figure 6 clearly shows that while common electrode 212 does not touch measuring electrodes 215. In addition, a review of the specification yields no limiting definition of "contact." Thus, the claim has been given the broadest reasonable interpretation consistent with the teachings of the specification regarding "contact."

E. Applicant also argues on pages 8-9 of the Remarks that Caillat et al does not rely on electrodes that measure current variation.

However, Applicant's own citation of column 2, lines 40-55 and Figure 4 of Caillat et al clearly states that "it is also possible to envisage other methods of analysis such as electrical measurement methods using impedance measurements...(emphasis added by examiner)." Thus, Caillat et al clearly teach the electrodes of the device are capable of the claimed function; i.e., electrical measurement of binding.

F. Applicant cited Figure 5 and column 5 of Caillat et al on page 9 of the Remarks to further underscore the teaching of fluorescence detection in Caillat et al.

However, Applicant's own citation of column 5 clearly states that "[w]hen the analysis method is a method of fluorescence measurement...." The use of the word "when" clearly indicate that fluorescence measurement is a single non-limiting embodiment of the teachings of Caillat et al, and thus does not negate teaching of Caillat et al in column 2, lines 40-55 and Figure 4 of Caillat et al that it is also possible to envisage other methods of analysis such as electrical measurement methods using impedance measurements.

G. Applicant's arguments on pages 9-10 of the Remarks regarding Landegren et al have been considered but are moot in view of the new rejections necessitated by the amendments.

H. Applicant's remaining arguments rely on the alleged deficiencies Caillat et al in view of Landegren et al. Since the arguments regarding Caillat et al were not persuasive for the reasons listed above, and because the arguments regarding Landegren et al are moot in view of the new rejections necessitated by the amendments, the rejections of the remaining claims are maintained for the reasons detailed above.

### ***Conclusion***

12. No claim is allowed.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

14. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Crow whose telephone number is (571)272-1113. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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